UNDERWATER BRIDGE INSPECTION REPORT

STRUCTURE NO. 02519

CSAH NO. 22

OVER THE

RUM RIVER

DISTRICT 5 - ANOKA COUNTY

PREPARED FOR THE

MINNESOTA DEPARTMENT OF TRANSPORTATION

BY

COLLINS ENGINEERS, INC.

JOB NO. 3512 (CEI 104)

MINNESOTA DEPARTMENT OF TRANSPORTATION
UNDERWATER BRIDGE INSPECTION

REPORT SUMMARY:

The substructure units inspected at Bridge No. 02519, Piers 1 and 2, were found to be generally in good condition below water with no defects of structural significance observed. Minor scaling and footing exposure was observed at both piers. The channel bottom around the substructure units presently appears stable with no evidence of significant scour or appreciable changes since the previous inspection.

INSPECTION FINDINGS:

(A) Minor bank erosion was observed along the slope protection measures at the east and west banks.

(B) The top of the footing at each pier was exposed. At Pier 1, the footing was exposed along the east face, with no vertical exposure detected. At Pier 2, the footing exposure extended along the entire west face, around the upstream nose, and down half of the east face with, a maximum vertical exposure of 2 to 3 inches and with timber formwork still present along the face.

(C) Light scaling was observed around both piers near the waterline, with typical penetrations of 1/16 inch and a maximum penetration of 1/8 inch.

(D) A moderate accumulation of timber debris was observed at the upstream nose of Pier 2, in addition to a 2-foot-diameter log along the east face on the channel bottom.

RECOMMENDATIONS:

(A) Reinspect the submerged substructure units at the normal maximum recommended (NBIS) interval of five (5) years. Monitor the footing exposures and timber drift accumulation during future inspections. If the drift is found to be increasing, removal may be warranted at that time.

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

Daniel G. Stromberg

Date 6/30/2004 Registration No. 21491

Respectfully submitted,

COLLINS ENGINEERS, INC.

Daniel G. Stromberg
Registered Professional
Engineer, State of Minnesota

MINNESOTA DEPARTMENT OF TRANSPORTATION
UNDERWATER BRIDGE INSPECTION

1. BRIDGE DATA

Bridge Number: 02519

Feature Crossed: The Rum River

Feature Carried: CSAH No. 22

Location: District 5 - Anoka County

Bridge Description: The superstructure consists of a three span, multiple concrete beam structure. The superstructure is supported by two concrete abutments and two concrete hammerhead piers, numbered 1 and 2 starting from the west. The substructure units are all founded on steel H-piles.

2. INSPECTION DATA

Professional Engineer/Team Leader: Shirley M. Walker, P.E.

Dive Team: Michelle D. Koerbel, Clayton Brookins

Date: September 24, 2002

Weather Conditions: Sunny, "50EF

Underwater Visibility: " 3 Feet

Waterway Velocity: "3 f.p.s.

3. SUBSTRUCTURE INSPECTION DATA

Substructure Inspected: Piers 1 and 2

General Shape: The piers are each of concrete hammerhead design with an oblong rectangular shaft having rounded noses, supported by a rectangular footing also with round noses and founded on steel H-piles.

Maximum Water Depth at Substructure Inspected: Approximately 5.3 feet.

4. WATERLINE DATUM

Water Level Reference: The top of the pier cap at the downstream end of Pier 1.

Water Surface: The waterline was approximately 11.7 feet below reference.
Waterline Elevation = 448.0.

5. NBIS CODING INFORMATION (Minnesota specific codes are used for 92B and 113)

Item 60: Substructure: Code 7

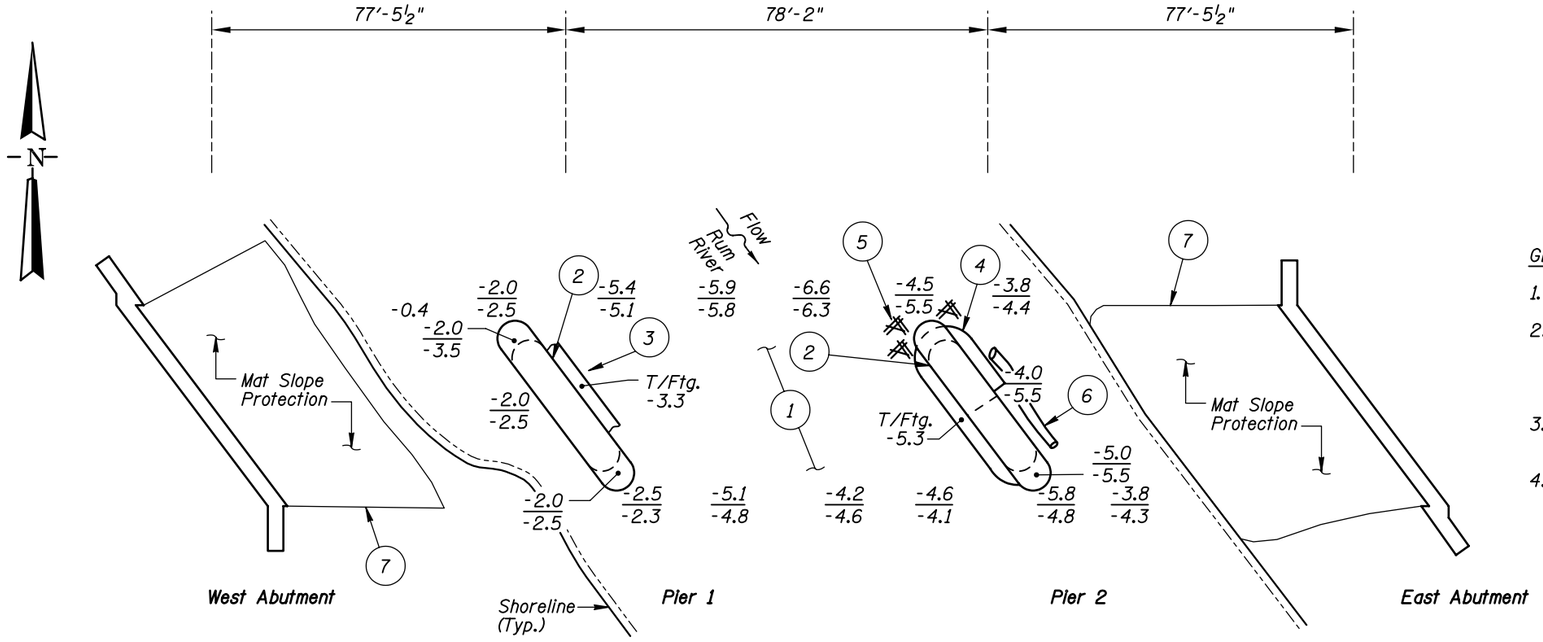
Item 61: Channel and Channel Protection: Code 6

Item 92B: Underwater Inspection: Code B/09/02

Item 113: Scour Critical Bridges: Code J/91

Bridge is scour critical because abutment or pier foundation is rated as unstable due to observed scour at bridge site.

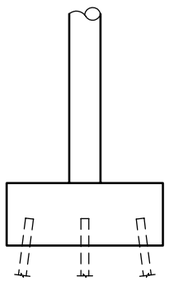
_____Yes __X__ No



SOUNDING PLAN

GENERAL NOTES:

1. Piers 1 and 2 were inspected underwater.
2. At the time of inspection on September 24, 2002, the waterline was located approximately 11.7 feet below the top of the pier cap at the downstream end of Pier 1. This corresponds to a waterline elevation of 448.0 based on the previous report dated September 12, 1997.
3. Soundings indicate the water depth at the time of inspection and are measured in feet.
4. Soundings were taken parallel to the bridge at 1/4 point intervals between the substructure units.



TYPICAL END VIEW OF PIERS

INSPECTION NOTES:

1. The channel bottom material consisted of gravel with scattered 2 to 12 inch cobbles.
2. Light scaling was observed around both piers near the waterline with typical penetrations of 1/16 inch and maximum penetrations of 1/8 inch.
3. The top of the footing was exposed along the east face of Pier 1 with no vertical exposure observed.
4. The top of the footing was exposed along the entire west face, around the upstream nose, and down half of the east face with a maximum vertical exposure of 2 to 3 inches with timber formwork still present along the face.
5. A moderate accumulation of timber debris was observed at the upstream nose of Pier 2.
6. A 2-foot-diameter log was observed along the east face of Pier 2 on the channel bottom.
7. Minor erosion was observed around the perimeter of the mat shore protection.

Legend

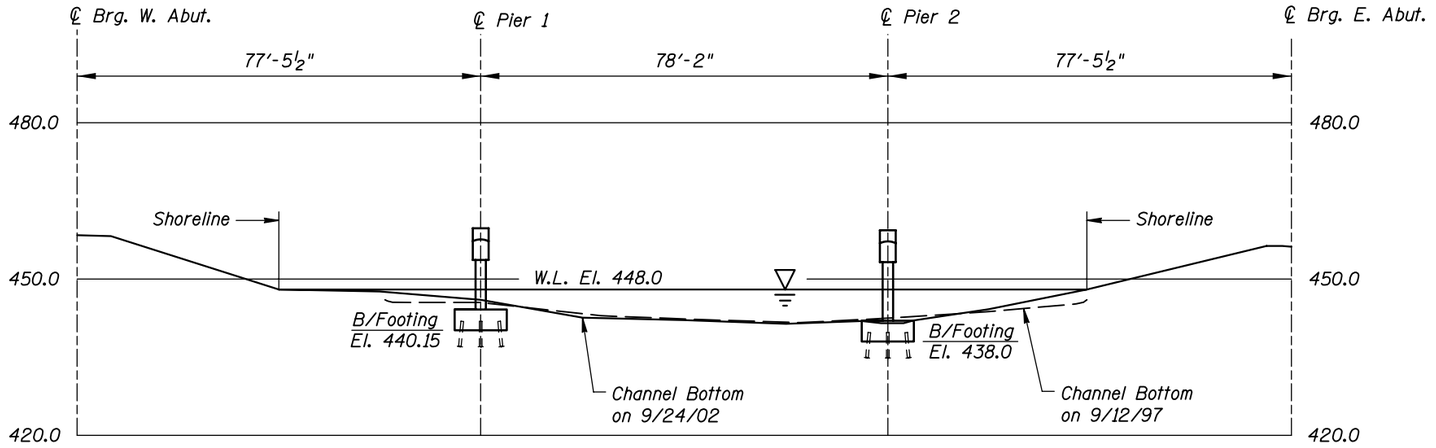
-2.0	Sounding Depth from Waterline (9/24/02)
-2.5	Sounding Depth from Waterline (9/12/97)

MINNESOTA
DEPARTMENT OF TRANSPORTATION
UNDERWATER BRIDGE INSPECTION

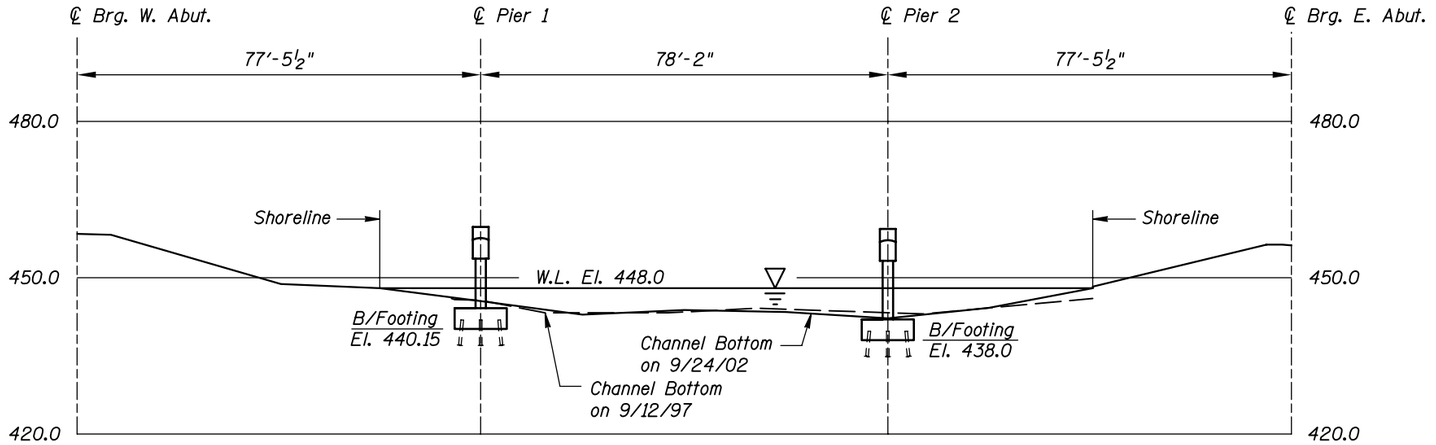
STRUCTURE NO. 02519
OVER THE RUM RIVER
DISTRICT 5, ANOKA COUNTY

INSPECTION AND SOUNDING PLAN

Drawn By: PRH	COLLINS ENGINEERS, INC.	Date: SEPT. 2002
Checked By: MDK	300 W. WASHINGTON, STE. 600 CHICAGO, ILLINOIS 60606 (312) 704-9300	Scale: NTS
Code: 35120104		Figure No.: 1



UPSTREAM FASCIA PROFILE



DOWNSTREAM FASCIA PROFILE

Note:

Refer to Figure 1 for General Notes.

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UPSTREAM AND DOWNSTREAM FASCIA PROFILES

Drawn By: PRH	COLLINS ENGINEERS, INC.	Date: SEPT. 2002
Checked By: MDK	300 W. WASHINGTON, STE. 600 CHICAGO, ILLINOIS 60606 (312) 704-9300	Scale: 1"=30'
Code: 35120104		Figure No.: 2

Photograph 1. Overall View of the Structure, Looking South.

Photograph 2. View of Pier 1, Looking Southeast.

Photograph 3. View of Pier 2, Looking East.

Photograph 4. View of West Abutment, Looking Southwest.

MINNESOTA DEPARTMENT OF TRANSPORTATION
OFFICE OF BRIDGES AND STRUCTURES
DAILY DIVING REPORT

INSPECTORS: Collins Engineers, Inc. DATE: September 24, 2002
ON-SITE TEAM LEADER: Shirley M. Walker, P.E.
BRIDGE NO: 02519 WEATHER: Sunny, "50E F
WATERWAY CROSSED: The Rum River
DIVING OPERATION: X SCUBA SURFACE SUPPLIED AIR
OTHER
PERSONNEL: Michelle D. Koerbel, Clayton Brookins
EQUIPMENT: Scuba, U/W Light, Scraper, Lead Line, Sounding Pole, Probe Rod, Camera

TIME IN WATER: 11:50 A.M.
TIME OUT OF WATER: 1:00 P.M.
WATERWAY DATA: VELOCITY "3.0 f.p.s.
VISIBILITY " 3 feet
DEPTH 5.3 feet maximum at Pier 2
ELEMENTS INSPECTED: Piers 1 and 2
REMARKS: Overall, the concrete was in good condition with no defects of structural significance below water. Each of the piers exhibited minor footing exposure with a maximum vertical exposure of 2 to 3 inches at Pier 2. There was evidence of erosion at the ends of the slope protection measures along both embankments. A moderate accumulation of timber debris was observed at the upstream nose of Pier 2, as well as a 2-foot-diameter log along the east face of the pier. The channel bottom appeared stable with no appreciable changes since the previous inspection.

FURTHER ACTION NEEDED: _____ YES ____X__ NO

Monitor the footing exposure and drift accumulation during future inspections, if the accumulation of timber debris around Pier 2 is found to be increasing, removal may then be warranted during routine maintenance of the bridge.

Reinspect the submerged substructure units at the normal maximum recommended (NBIS) interval of five (5) years.

MINNESOTA DEPARTMENT OF TRANSPORTATION
OFFICE OF BRIDGES AND STRUCTURES

UNDERWATER INSPECTION CONDITION RATING FORM

BRIDGE NO. 02519
INSPECTORS Collins Engineers, Inc.
ON-SITE TEAM LEADER Shirley M. Walker, P.E.
WATERWAY CROSSED The Rum River

INSPECTION DATE September 24, 2002

NOTE: USE ALL APPLICABLE CONDITION DEFINITIONS AS DEFINED IN THE MINNESOTA RECORDING AND CODING GUIDE INCLUDING GENERAL, SUBSTRUCTURE, CHANNEL AND PROTECTION, AND CULVERTS AND WALL DEFINITIONS TO COMPLETE THIS FORM.

CONDITION RATING

			SUBSTRUCTURE						CHANNEL					GENERAL					
UNIT REFERENCE NO.		MAXIMUM DEPTH OF WATER	PILING	COLUMNS, SHAFTS, OR FACES*	FOOTINGS	DISPLACEMENT	OTHER	OVERALL SUBSTRUCTURE CONDITION CODE*	SCOUR	EMBANKMENT EROSION	EMBANKMENT PROTECTION	OTHER (DRIFT/DEBRIS)	OVERALL CHANNEL & PROTECTION CONDITION	CONCRETE	STEEL	TIMBER	LOSS OF SECTION	PREVIOUS REPAIR OR MAINTENANCE	OTHER
	UNIT DESCRIPTION	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
	Pier 1	3.3’	N	7	7	9	N	7	6	7	7	8	7	7	N	N	N	N	N
	Pier 2	5.3’	N	7	7	9	N	7	6	7	7	6	6	7	N	N	N	N	N

*UNDERWATER PORTION ONLY

REMARKS: Overall, the concrete was in good condition with no defects of structural significance below water. Each of the piers exhibited minor footing exposure with a maximum vertical exposure of 2 to 3 inches at Pier 2. There was evidence of erosion at the ends of the slope protection measures along both embankments. A moderate accumulation of timber debris was observed at the upstream nose of Pier 2, as well as a 2-foot-diameter log along the east face of the pier. The channel bottom appeared stable with no appreciable changes since the previous inspection.

NOTES: ATTACH SKETCHES AS NEEDED, IDENTIFY REMARK BY REFERRING TO UNIT REFERENCE NO. AND REMARK NO.
USE GENERAL SECTION TO IDENTIFY OVERALL PRESENCE OF SPALLS, CRACKS, CORROSION, ETC.